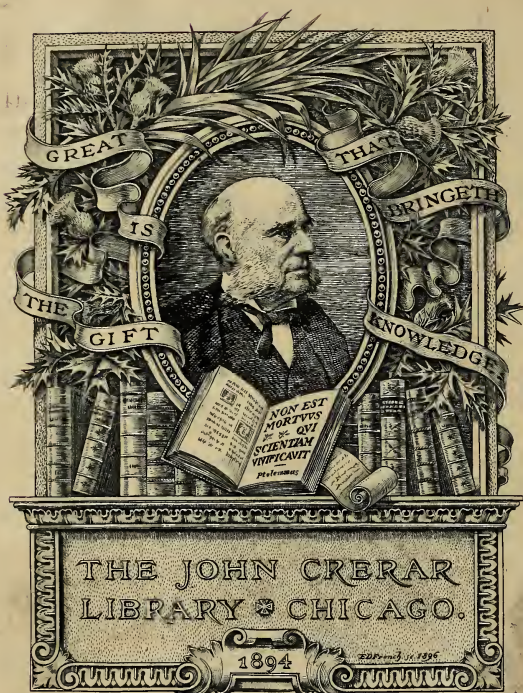


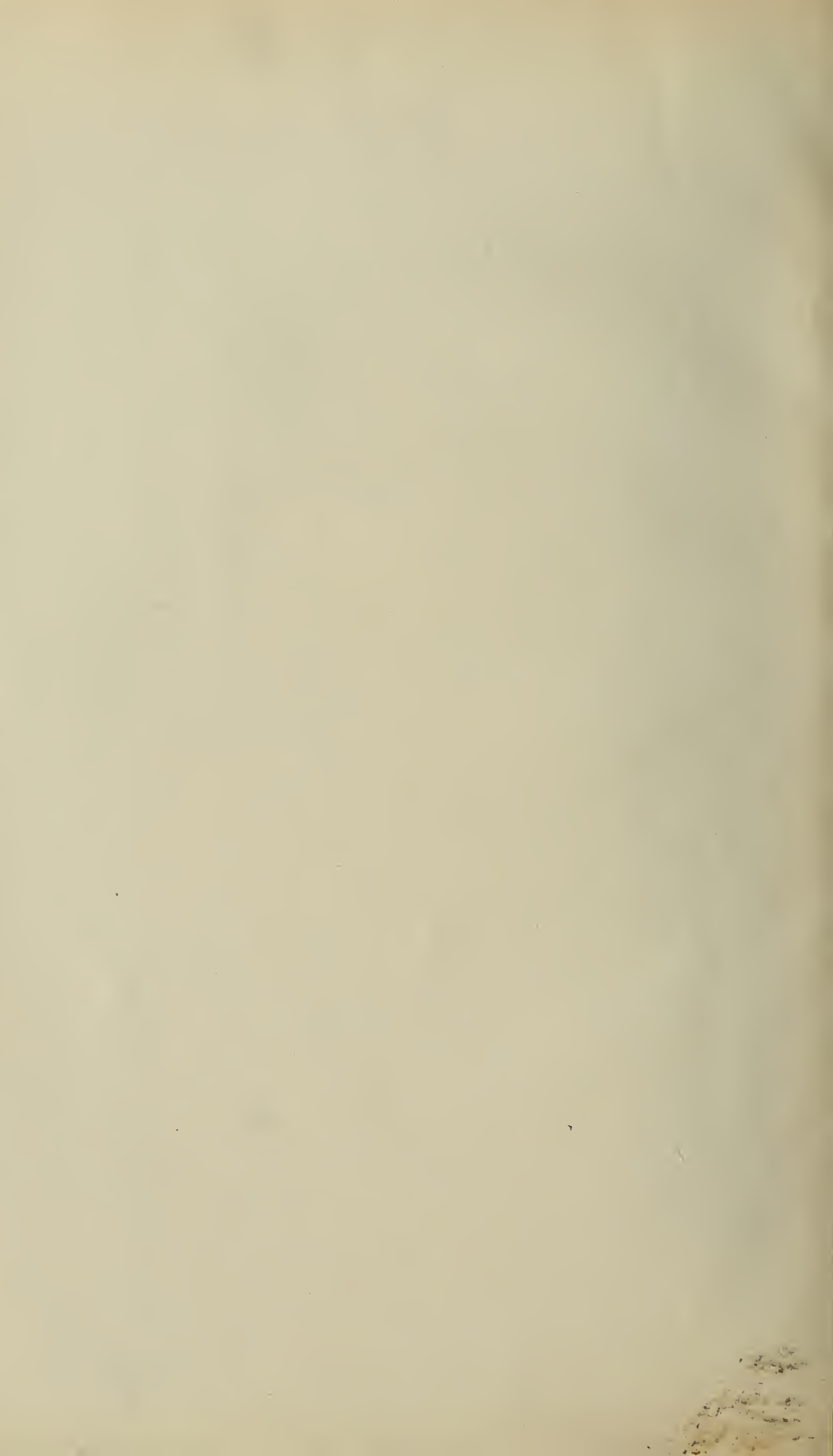
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Vol. III  
(New Series)

BULLETIN

No. 4.

IOWA  
STATE COLLEGE  
OF  
AGRICULTURE AND  
MECHANIC ARTS

COMPENDIUM NUMBER  
JANUARY, 1906  
AMES, IOWA

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PRESIDENTS OF IOWA STATE COLLEGE.

1868--1906.

First President,  
A. S. WELCH, M. A., LL. D.,  
of Michigan.

Second President,  
S. A. KNAPP, A. M., LL. D.,  
of Iowa.

Third President,  
LEIGH HUNT, A. M.,  
of Iowa.

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Sixth President,  
E. W. STANTON, M. Sc., LL. D.,  
of Iowa.

Seventh President,  
A. B. STORMS, A. M., D. D., LL. D.,  
of Iowa.



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## COLLEGE INDICES.

The true aim of the Iowa State College is to fit men and women for the great responsibilities and the great opportunities of American life.

"We stand today at the beginning of an educational movement that means the salvation of the world, and its elements are faith, spirit, open-mindedness and work."—Francis W. Parker.

"A scholar is the favorite of heaven and earth, the excellency of his country, the happiest of men."—Emerson.

"It is not the quantity of study one gets through that makes a man wise, but the oppositeness of the study to the purpose for which it is pursued; the concentration of the mind, for the time being, upon the subject under consideration, and the habitual discipline by which the whole system of mental application is regulated."—Charles Sumner.

"Tis the mind that makes the body rich."—Shakespeare.

"The fruit of liberal education is not learning, but the capacity and desire to learn; not knowledge, but power."—President Eliot.

College Motto—"Science with Practice."

College Colors—Cardinal and Gold.



COLLEGE PARK

## IOWA STATE COLLEGE.



THE CHICAGO AND NORTHWESTERN DEPOT

The Iowa State College is indeed fortunate in being situated upon a spot which seems to have been especially designed for a beautiful and thriving educational center.

Located at Ames, a clean and progressive college town of good moral tone, high ideals



MOTOR APPROACH

and character, the College is but one and one-half miles from the depot at the junction of the main line and branch road of the Chicago and Northwestern Railway. Easily reached from all parts of the state, blessed by a wholesome environment, surrounded by clean and inspiring influences, the location of the Iowa State College is ideal.



MAIN APPROACH TO COLLEGE

## HISTORY OF THE IOWA STATE COLLEGE.



OLD MAIN—(Destroyed by Fire August 12, 1902.)

The history of this institution is one of rapid growth and progress. By constant effort, the Iowa State College has been transformed from a small school in 1869, employing but seven professors and instructors to a school employing a present faculty of one hundred and sixteen members; from a school with one four story building, accommodating one hundred and seventy-three students to a school with twenty-three modern and well equipped buildings, accommodating nearly fourteen hundred of the brightest and most intelligent youths of this and neighboring states and many foreign lands. This growth in numbers and equipment has been accompanied by a corresponding growth in efficiency.

New courses have been added, the old have been enlarged and broadened until today the Iowa State College stands as one of the broadest and most efficient schools in the West.

## THE CAMPUS.

Walking over the campus of the college one autumn evening a landscape gardener said, "Your students may not think much about it during their years in college, but afterward, when the hair is gray, their most vivid memories of their college life will be this campus; its grass and trees, the shadows, the setting sun and the chiming bells."

Situated in the heart of fruitful Iowa, sufficiently rolling to give it picturesqueness, the campus of the Iowa State College is perhaps the most interesting and spacious and beautiful of any in the United States. A living stream meanders thru the southern portion of the campus proper, skirted for a part of its course by rows of tall and graceful willows, first to announce

the coming of spring, last to cover the ground with foliage in the yellow autumn. One hundred and seventeen kinds of forest trees may be found upon the college campus of 120 acres. These have been thrown into natural groupings so as to bring out in bold relief the distinctive character of each variety, and yet so naturally done as to appear to be the work of nature herself, rather than the art of man. Here may be found perfect types of hard maple, indescribably rich in the glory of autumn foliage; and the different species of oak and hickory, and all kinds of hard wood that grow in this climate; the graceful and stately larch with its foliage of green as soft and delicate, in the early springtime,

as that of the lichens and moss in the Witch's Gulch in the Dells of Wisconsin, and after the frosts of autumn, as yellow as the golden corn of Iowa.

Dr. Welch, the first President of the College, was a landscape gardener. The tree plantings that now adorn the campus were under his direction, as also the drives and walks. Constantly new vistas open to the view of him who wanders over the beautiful blue grass sod or under the trees.

The substantial and massive buildings now being erected to house the hundreds of students that throng the college are adding dignity and interest to the campus scene. It is a place of inspiration; intellect and heart pass under the charm of a strange stimulus; the imagination is kindled; it is the atmosphere of lofty ideals, of earnest convictions.





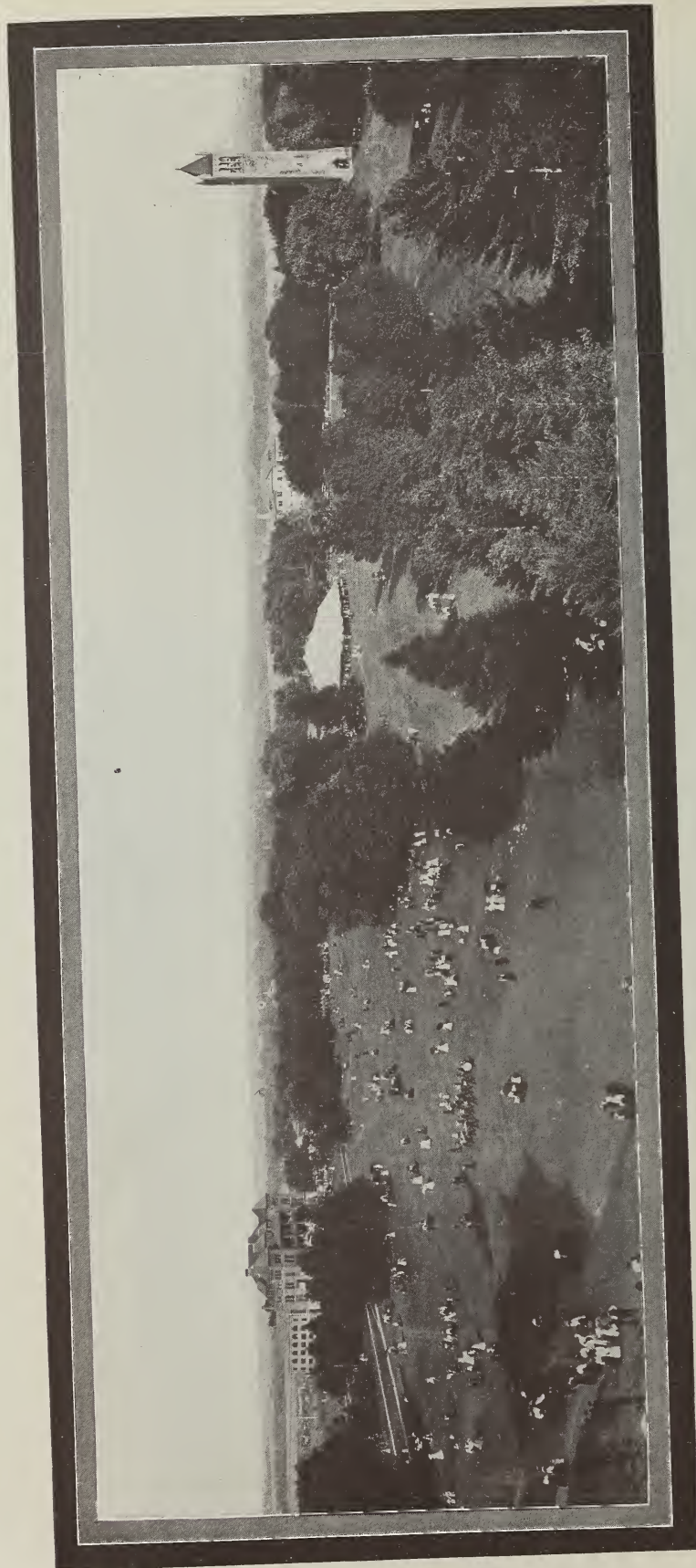
ALONG SQUAW CREEK



NEAR MARGARET HALL



CENTRAL CAMPUS IN WINTER



EXCURSION DAY—SEPTEMBER 29, 1905

## THE SCOPE.

In the words of the Morrill Endowment Act of 1862, "The leading object shall be, without excluding either scientific or classical studies and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts \* \* \* \* in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." This the scope, the aim of our institution is today being realized. Our courses are broader and more scientific than ever before, the equipment is more adequate, the instruction is the best, and a large number of students are here accepting every advantage offered by the institution.

The four year courses offered with the degrees granted for the completion of the same are as follows:

- Course in Agronomy—Bachelor of Scientific Agriculture (B.S.A.)
- Course in Dairying—Bachelor of Scientific Agriculture, (B. S. A.)
- Course in Animal Husbandry—Bachelor of Scientific Agriculture (B. S. A.)
- Course in Horticulture—Bachelor of Scientific Agriculture (B. S. A.)
- Course in Science and Agriculture—Bachelor of Scientific Agriculture (B. S. A.)
- Course in Veterinary Science—Doctor of Veterinary Medicine (D. V. M.)
- Course in Mechanical Engineering—Bachelor of Mechanical Engineering (B. M. E.)
- Course in Civil Engineering—Bachelor of Civil Engineering (B. C. E.)
- Course in Electrical Engineering—Bachelor of Science in Electrical Engineering (B. S. in E. E.)
- Course in Mining Engineering—Bachelor of Science in Mining Engineering (B. S. in Mn. E.)
- Course in Science—Bachelor of Science (B. S.)
- Course in General and Domestic Science—Bachelor of Science (B. S.)
- Course in Domestic Science—Bachelor of Domestic Science (B. D. S.)

Two year courses in Mining and Ceramics and a one year course in Dairying are also offered, for the completion of which certificates will be given. That many, who are unable to take the full college course, may take advantage of the advancement being made along their chosen work, short courses are now offered in Stock and Grain Judging, Domestic Science, Dairying and Veterinary Science and also Good Road Investigations.



## BUILDINGS AND EQUIPMENT.



THE HOSPITAL

new appropriations are made annually for improving them.

The work of the College is carried on in twenty-three modern and well equipped buildings. Each department is supplied with the apparatus and other facilities required to encourage both faculty and student to do the most efficient work. Recognizing the importance of the practical work pursued in the laboratory as well as studying the theory in the class room, great sums of money have already been spent in equipping our laboratories and



AN OLD LAND MARK—ERECTED IN 1865



OFFICE BUILDING



THE "KNOLES"—PRESIDENT'S RESIDENCE



CAMPANILE

## THE CENTRAL BUILDING.

"Architecture is the printing press of all ages, and gives a history of the state of society in which it was erected."

—*Morgan.*

"And downward thence to latest days  
The heritage of beauty fell;  
And Grecian forms and Grecian lays  
Prolonged their humanizing spell,  
Till when new worlds for men to win  
The Atlantic riven waves disclose,  
The wildernesses there begin  
To blossom with the Grecian rose."

The new Central Building, the erection of which was authorized by the Twenty-ninth General Assembly, is now nearing completion and will be ready for occupancy early in January.

The building is designed in the Classic Renaissance style with a strong Grecian feeling running through the detail of the exterior. The last General Assembly made a liberal appropriation for furnishings to be in keeping with the exterior, and also provided funds to build the attic and dome, features that emphasize and mark the structure as the administrative hall of the institution, and that afford top-lighted rooms for special work in the Botanical Department.

The new hall occupies the site of the old main building, is built thoroughly fireproof of buff Bedford stone and other durable materials, has a frontage of 216'-0", is 112'-0" deep, has 78,000 square feet of floor space in the four stories and attic, and will house the executive offices and the departments of English, French and German, Civics, Economic Science, History, Mathematics, Public Speaking and Botany.

The interior is plainly finished with the exception of the Trustees' room and President's Reception Room, which have been ornamented with stucco cornices and pilastered wall treatment.

Taken together, the rotunda and two stair halls in the first story form an apartment 36'-0" wide and 166'-0" long, in which the work of registration of students may be rapidly and comfortably carried on without using any of the offices.

The systems of heating, lighting, ventilating and plumbing have been installed in conformity to the high standard adopted by the Trustees for all such work in buildings that have been erected on the campus during the past five years.



CENTRAL BUILDING

## MORRILL HALL.

Morrill Hall, one of the oldest of the College buildings, was named in honor of Hon. Justin S. Morrill, the originator of the "Land Grant" for Colleges of Agriculture and Mechanic Arts. It is of deep red brick, with stone foundation and stone, brick and terracotta trimmings interblended. In it are the College Chapel, with a seating capacity of 650; the Library, with over 18,000 volumes, and the Zoological Museum, Lecture Rooms and Laboratories.



MORRILL HALL



COLLEGE CHAPEL

## MARGARET HALL.

Margaret Hall, the home of the young women of the College, occupies one of the most pleasing situations on the campus of which it commands a most attractive view. It is provided with steam heat, electric lights, a large parlor, baths and other modern conveniences. The rooms, for which each girl is charged \$3.00 rent per semester, are large, light and attractive. Margaret Hall accommo-

dates about one hundred girls to whom the rooms will be assigned in the order of their application. The young women are under the direction of an efficient dean of women. In connection with the hall, there are two clubs at which the girls may obtain board at a reasonable rate.

The Domestic Economy Department is located in an annex to this building. It occupies six rooms including offices, reading room, cooking laboratory, school kitchen, and dining room. The Botany Department is also temporarily

located here awaiting the completion of the New Central Building.



GIRLS ROOM



RECEPTION ROOM



MARGARET HALL

## AGRICULTURE.



The several departments of Agriculture unite in offering such courses as to furnish a good foundation from which a student may become either a successful farmer or may develop into a specialist in any of the branches of the Agricultural industry. The department offers short as well as the regular four year courses—the difference being due largely to the degree in which the student wishes

to develop himself for a special line of work. The result of the work of these departments is clearly shown by the development of better farmers and more capable men in practical life as well as by the prominent positions held by our graduates in the faculties of other colleges.

Agricultural Hall, accommodating the departments of Agriculture, Horticulture, Agricultural Chemistry, Veterinary Science, and the Experiment Station work, is a large four story building, the lower one being of stone and the others of brick. A new three story building, devoted to Agricultural Engineering, photography and bulletin work has been erected as an addition to Agricultural Hall. There are nine other buildings besides the barns, stables, sheep and swine barns and seed houses which are devoted to the Division of Agriculture.

The erection of a new Central Agricultural Building, costing \$250,000.00, will be begun during the next semester.



AGRICULTURAL HALL



NEW AGRICULTURAL HALL—To be Erected in 1906

This building will be used as the headquarters of the departments of Agriculture and will also accommodate the Domestic Science department, which will occupy the entire fourth story.

The thoroughness and practical value of the work of the department is evidenced by the good work of our students in competition with those of other schools and colleges.

The Spoor Trophy, valued at \$700, having been won three successive times by the teams representing our Animal Husbandry department in the International Judging Contest, is now the permanent possession of the Iowa State College.

Another Trophy was last year offered by the Union Stock Yards of Chicago, to be contested for by the student teams from the agricultural colleges of the United States and Canada. This Trophy is a bronze statue of a horse, a reproduction of one of the masterpieces of the old country. Like the Spoor Trophy, it is awarded to the team doing the best competitive work in stock judging at the International Stock Judging Contest, to remain in their possession for a year, when it will again be contested for. After having been won for three successive years, it will also become the permanent possession of the college represented by the winning teams. In December, 1904, it was won by the team representing the Animal Husbandry department of the Iowa State College, and hence is now in our possession.



## AGRONOMY.

Agronomy, the science of the field and its crops, includes a study of Farm Crops, Soils, Agricultural Engineering and Farm Management.

In the work in Farm Crops, a careful study is made of the selection, breeding and improvement of farm crops, forage plants and grasses.

The work in Soils includes a study of Soil Physics and Soil Fertility—study being made of soil types of the state, of soil moisture, of soil temperature, cultivation, drainage, the use of commercial fertilizers and



A CLASS IN SOIL PHYSICS

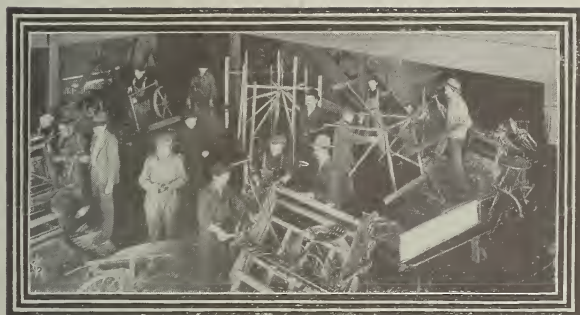
farmyard manure, and of different systems of crop rotation—thus noting the effect of different methods of handling the soil upon its productiveness.

The work in Agricultural Engineering comprises a study of the tools, machinery, fences, drains and roads of the farm—the student spending much time in the field making practical application of the knowledge gained in the class room and laboratory.

In Farm Management, a study is made of the different systems of extensive and mixed farming; comparison and study of the methods pursued by our most successful farmers; circumstances which influence agricultural practices and the business methods and economic problems of the farmer.

The work of the Agronomy Department is conducted not only in the class room and laboratory but also by the actual experimental work as done in the field. The great success of this department is due to its co-operation with the Iowa Corn and Grain Dealers Associations and the United States Department of Agriculture as well as the co-operative experiment stations throughout the state.

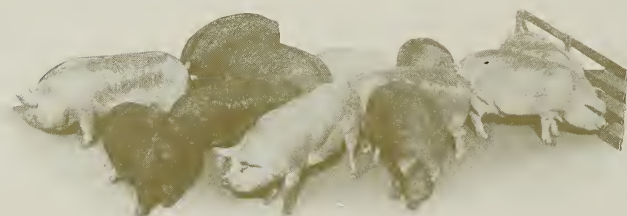




FARM MACHINERY LABORATORY



CLASS IN CORN JUDGING FARM CROPS



CLASS IN STOCK JUDGING

## ANIMAL HUSBANDRY.

The Department of Animal Husbandry stands for all lines of work which pertain to the judging, selecting, breeding, feeding, development, care and management of the various breeds and classes of domesticated animals.

The herds and flocks, carefully established at an early date, have from time to time received valuable additions of almost every recognized market class of animals and good representatives of all the recognized breeds of live stock. Our present equipment of representatives of thirty-one different breeds of live stock, maintained for educational purposes, is unsurpassed by the live stock equipment of any institution on the continent—thus enabling us to offer work along this line which cannot be surpassed. In both lecture and laboratory, the work is demonstrated by the use of living specimens, the score card practice insuring skill in judging representatives of different breeds and in comparative judging.

Students in this department have the advantage of the investigations of the experiment station and the feeding and preparation of the prize winning animals for exhibition at the International Stock Exhibition at Chicago.

A special two weeks course is now offered during the winter vacation, in January, to farmers, stock growers, and practical men interested in this work.





GREEN HOUSE AND HORTICULTURAL LABORATORY



WORK IN PLANT BREEDING



HORTICULTURAL LABORATORY

## HORTICULTURE AND FORESTRY.



The department of Horticulture and Forestry offers most excellent opportunities for observation and study.

The department has a two story laboratory for horticulture, containing the main laboratory for general instruction and research rooms for special students. The greenhouses, covering 5,000 square feet, offer every opportunity for studying the management of plants under glass. In addition to this, about forty acres of land are devoted to horticultural purposes, orchards, gardens and forestry plantations, thus enabling the student to make actual

tests of the worth of different varieties, modes of culture and adaptability to soil and climate.

Instruction is also offered in the science of Forestry—studying the production of timber for various purposes, the preservation of timber, lumbering operations and the general forest conditions of the country. Excellent opportunities are offered here for this study. Many varieties of both native and foreign trees are found on or near the Campus, which, together with the large collection of specimens found in the museum, afford ample examples for study. The Library, which is always at the disposal of the student, is also well supplied with literature relating to both Horticulture and Forestry.



CLASS IN FORESTRY

## DAIRYING

The aim of the work of the Dairy department is not only instruction and training to fit men for the various callings in Dairying but also for Experimentation the making of investigations and discovery of facts by which the process of manufacture can be improved, the cost of production decreased, and the quality of the dairy products improved.



MEDALS—Won by Iowa Dairy Students.

With the additional equipment, a new dairy building, dairy farm, and a herd of dairy cows, the department provides a more thorough and better course than ever before.

The New Dairy Building is a three story building built of pressed brick, trimmed with Bedford stone, containing factory butter and cheese rooms, bottling room, refrigerators, lunch rooms, offices, research laboratory, farm dairy room, students testing room, dairy library or reading room, and bacteriological research laboratory. The building is exceptionally well equipped for practical work as well as scientific investigation and instruction. It is a practical work-

ing creamery and cheese factory in operation thruout the year.

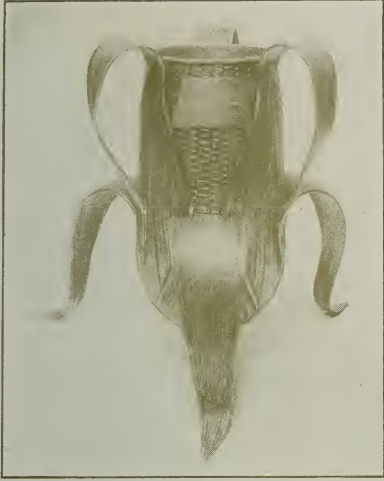
The Dairy Farm of two hundred acres of choice land is well stocked with various types and breeds of dairy cows. The milk from this herd together with the milk and cream shipped and hauled to the creamery will supply the needs of the department for scientific investigation and instruction.

The student becomes familiar with everything connected with the management of a commercial creamery, cheese factory, dairy farm and college work.

In addition to the regular four year course the Dairy school offers a two weeks course in January to practical and experienced butter and cheese makers and also a one year's course.



DAIRY BUILDING



## TROPHIES OFFERED

### AT THE WINTER SHORT COURSE

Wallaces Farmer's Trophy, which was presented by the Wallace Publishing Company of Des Moines, is awarded each year to the Farmers' Institute, Farmers' Club or Corn Club for the best fifty ears of corn exhibited at the Short Course in Corn Judging in Ames. It was won in January, 1905, by the Monona County Corn Club.

The Farmers' Tribune Cup, presented by the Farmers Tribune of Sioux City, Iowa, is awarded annually to the club team of three members winning first place in the corn judging contest held at Ames during the Winter Short Course. It was won by the Panora Corn Club of Guthrie County in January, 1905.



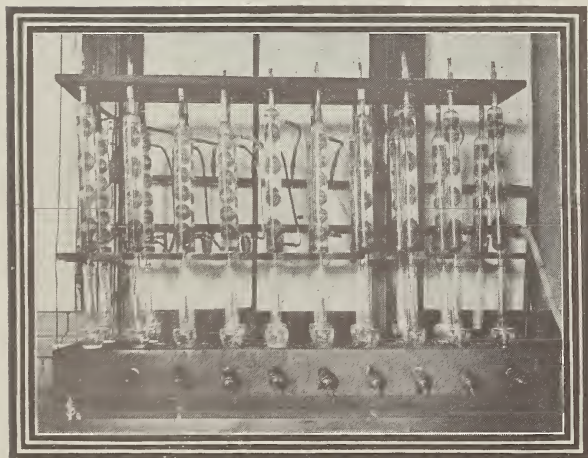
The Whiting Trophy was presented to the Iowa State College by the Hon. W. C. Whiting of Monona County. It is awarded each year to the person who exhibits the best ten ears of corn of any variety at the Short Course in Corn Judging held at Ames in January. In January, 1905, it was won by E. J. Eastman.

## AGRICULTURAL EXPERIMENT STATION.



EXPERIMENT STATION BARN

The aim of the Agricultural Experiment Station is to investigate those questions which will have a practical relation to successful agriculture. It includes experimental investigations and study of the different varieties of fodders, grasses and grains, the methods of cultivation and improvement, the moisture and fertility of the soil, the feeding of different breeds of animals, the preparation of feed, the problems of butter and cheese making, bacteriological investigations, fruit growing, spraying, fertilizing, pruning and thinning. In all of these experimental investigations, data is preserved and published in bulletin form that the farmers of the state may benefit by the results.



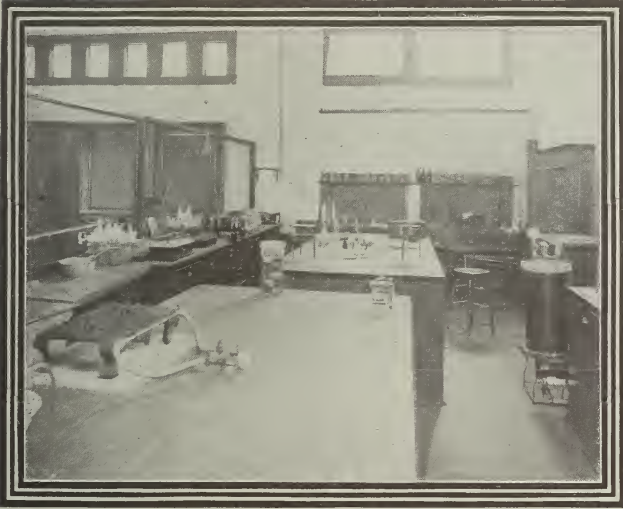
APPARATUS USED IN THE DETERMINATION OF FAT BY  
ETHER EXTRACTION.  
CHEMICAL SECTION OF EXPERIMENT STATION

## VETERINARY SCIENCE.

The four year course of Veterinary Science is conducted by means of recitations, lectures, demonstrations and laboratory practice.

Specially equipped laboratories afford excellent opportunities for the study of anatomy, pharmacy, bacteriology, histology,

pathology, and the related sciences. The students also have the advantages of a very extensive library, where access may be had to such journals, magazines, experiment station bulletins and other literature as they may desire for reference. The College, being located in a rich stock



VETERINARY LABORATORY—HISTOLOGY AND PATHOLOGY

growing country, is supplied with an abundance of clinical material for daily demonstration at the hospital.

The Veterinary Department occupies the third floor of Agricultural Hall, where offices, lecture rooms, and museum are located. The Veterinary Hospital, a three story building, is well equipped for conducting clinical as well as general hospital work.

## DIVISION OF ENGINEERING.



### ENGINEERING LABORATORIES AND SHOPS

The courses in Mechanical, Civil, Electrical and Mining Engineering aim to fit the students entering the professional engineering work to excel and thus to advance more rapidly than those who have not had the advantages of this technical preparation.

In all these courses, a thorough understanding of the branches of the true and applied sciences, which are related to the professional work, is necessary that the student may be fitted to grasp the details of the line of work which he may choose as his profession.

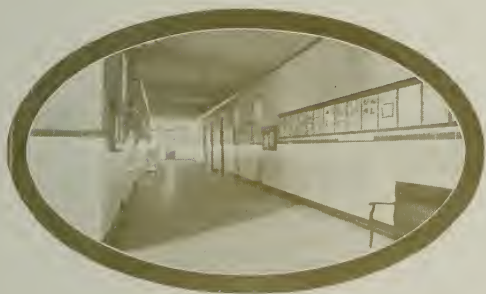
Thus a college course in engineering should train the mind to think logically and to observe accurately, should acquaint the student with approved methods of draughting and computing, with the use of improved instruments employed in his profession, and should provide him with experimental work relating to engineering problems. But the Engineering courses should do more than this. They should, by a study of English, History, Civics, Economics, Foreign Language, etc., furnish him with a broad and general education that he may be not only a professional man, but also an enlightened member of society.

The buildings occupied exclusively by the Division of Engineering are the Engineering Hall, the Engineering Laboratory, the Power Station, the Forge and Foundry, the Pattern Shop, the Locomotive Laboratory and the Ceramic Laboratory.

*The New Engineering Hall* is a four story fire proof building, in which all the engineering departments have offices,

recitation and lecture rooms, laboratories and an engineering museum. This building is of Bedford stone, has plate glass windows and modern conveniences and furnishings throughout. It is the most modern and best equipped Engineering building in the West.

The equipment of this department has recently been materially increased by the receipt of the entire Engineering Library of 796 volumes of the late George W. Catt of the class of '82, which according to the provisions of his will is to be placed in Engineering Hall where all the students may have free access to it. This will probably be the means of transferring the entire engineering library to the museum of Engineering Hall. Some monument or memorial will be placed to indicate that portion of the library left by Catt.



ENGINEERING HALL

## MECHANICAL ENGINEERING.



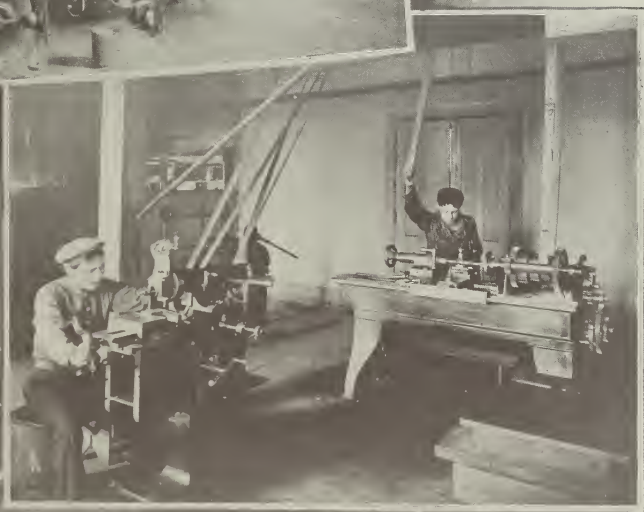
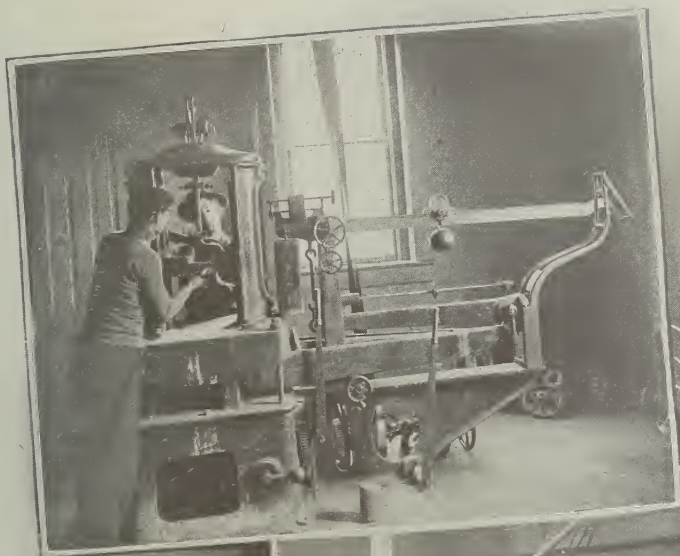
The course in Mechanical Engineering, including a study of english, modern language, history, mathematics, chemistry and physics, shop work and drawing, and experimental work in physics and mechanics, by encouraging an application of the scientific principles involved, aims to fit one for holding responsible positions.

Opportunities are open for the graduate in the drafting, designing, operating and business departments of all manufacturing enterprises, in the motive power and operating departments of railroads, in electric lighting, water and power undertakings, testing bureaus, government service and in engineering teaching.

The material equipment of the department includes machine, forge, moulding and pattern shops, drafting rooms, engineering laboratories and their thorough equipment.



CARPENTER SHOP



1-TESTING MACHINE  
Used in Testing Cement Blocks.

2-SHAPER AND MACHINE LATHE  
The Machine Shop.

3-CORNER OF DRAWING ROOM

## CIVIL ENGINEERING.

The Civil Engineering department offers a thorough four year course of study, giving as a foundation a thorough training in mathematics, the sciences and culture studies, on which is based instruction in surveying, bridge engineering, railway engineering, sanitary engineering, city engineering, and other branches of the profession. A special feature of the work is a Summer Surveying Camp each year.



The department occupies commodious and well equipped quarters in the New Engineering Hall besides laboratories in the old engineering building. Its equipment of surveying instruments and laboratory apparatus is large and constantly increasing.



laboratory apparatus is large and constantly increasing.

Graduates of the department are holding responsible positions throughout the country and abroad — positions being offered in railway engineering, city engineering, irrigation engineering, dredging work, bridge engineering, water supply, sewerage and drainage engineering, canal engineering and other lines of civil engineering, the demand for graduates being greater than the supply.



A CIVIL ENGINEER OF CLASS OF 1903  
AT WORK IN THE PHILIPPINES



CIVIL ENGINEERS IN SUMMER CAMP



HYDRAULIC DREDGE AT WORK AT VICKSBURG, MISS.  
George W. Catt, C. E.—I. S. C. '82.

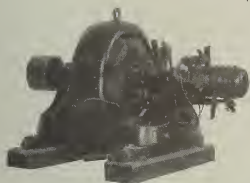


DYNAMO LABORATORY



ASSEMBLY AND PHYSICAL LECTURE ROOM

## ELECTRICAL ENGINEERING.

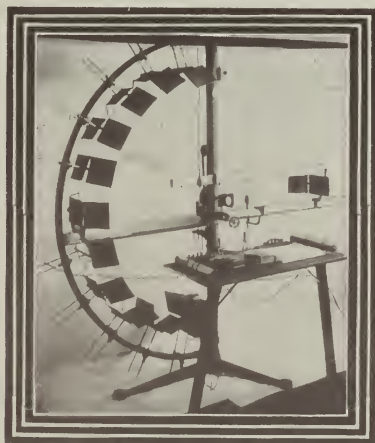


The work in the Electrical Engineering Department is designed to give the student an understanding of the fundamental principles governing the various applications of the electric current.

During the first years of the course, stress is laid upon Mathematics, Physics, Chemistry, Shop Work and Drawing because of their fundamental importance to the work. Time is also spent in the study of English, History and modern language for the broadening effects and general culture which are secured through such studies, and which are essential to a well rounded technical course. The latter part of the course is devoted to laboratory and testing work and the operation and management of electric machinery in order to accustom the student to the handling of electrical apparatus and to familiarize him with the practical aspects of the work.

The laboratory facilities include physical laboratories, testing room, a standardizing room and a dynamo laboratory, also a good equipment in electrical measuring and testing instruments and in dynamo electrical machinery.

The field of electricity is so large and so growing that the opportunities for graduates are very great.



INTEGRATING PHOTOMETER

## MINING ENGINEERING.



MINING ENGINEERS AT SUMMER CAMP  
Mine Investigations



ON THE TRAIL

The course in Mining Engineering is planned to give the student a familiarity with the fundamental branches of the science of Mining and Metallurgy, so that in a short time after graduation the student may acquire the practical experience absolutely necessary that he may assume a responsible position in the mining industry. The work of the class room and laboratory is supplemented by actual work in the mine and about the

# THE JOHN CREER LIBRARY

mill and smelter that the student may become familiar with the best modern practice of mining, milling and smelting.

The department aims to give as complete an exposition of the theories and laws which underlie the science of mining as the time will permit, but the verification and application of these theories and laws must be made in large measure, in the field and in the industries. The graduates secure very remunerative positions.



ENTRANCE TO THE MINES



## ENGINEERING EXPERIMENT STATION.



CEMENT LABORATORY

While the principal business of the Engineering departments of the College is to give instruction to their students, the fact is recognized that the state contributes largely to the financial support of the College, and that in return, not only should the college give tuition to the children of Iowa, but it should contribute to the carrying on of the industrial interests of the state.

With this thought as a motive, during the past few years the Engineering departments have been striving to help the industrial interests of Iowa by investigation of Iowa brick, sewage disposal, good roads, fuels, clays and structural materials.

In support of this work, the Last General Assembly appropriated a specific sum for the establishment of an Engineering Experiment Station for carrying on and publishing bulletins of investigations of value to the industrial and municipal interests of Iowa.



CONCRETE CULVERT CONSTRUCTION  
Demonstration for road officers given during  
Road School, June, 1905.

## SCIENTIFIC COURSES.

The aim of the work offered in the Scientific Courses is to lay a foundation in scientific facts and principles along which lines all the real advances in modern civilization have been made.

The work of the first two years has been carefully outlined, but little choice being left to the student. At the beginning of the Junior year, the student in the Science and General and Domestic Science Courses must select some particular science—Botany, Chemistry, Zoology, Physics, Economic Science, Geology, Mathematics or Domestic Science, on which he will devote not less than three hours per semester during the Junior and Senior years. Other Scientific work, making a total of thirty-two hours per week, shall be selected by the student after consulting with the President and Head of the Department. Each student shall take between sixteen and twenty hours per semester during these two years.

The object of the Domestic Science or Normal Training Course being to prepare students for teaching, more work in Domestic Science, Chemistry, Zoology, Physiology and Botany is required, especial emphasis being placed on the Theory and Practice of Teaching.



THE COLLEGE AS VIEWED FROM ONE-HALF MILE NORTH

## BOTANY AND BACTERIOLOGY.



Botany constitutes one of the more important sciences offered in the Agricultural, Science and Domestic Science courses. It trains the student to observe and to form scientific habits of thought. The science deals with many of the important economic problems such as the food of man and animals, noxious plants and their extermination. It also treats of the relation of plant to environment and of the various diseases by which they are attached. The scientific principles developed by the Botanist are applied by the Agriculturist and Horticulturist in the pursuit of their vocations.

Bacteriology comprises a study of the bacteria in soil, air and water, their relation to the diseases of man and animals and to home sanitation in its various phases, their function in decay, putrefaction and fermentations and the many economic aspects which have been developed in this the "youngest of the sciences."



## FRENCH AND GERMAN.

The aim of the courses in Modern Languages is to give such a knowledge of grammar and the rules of syntax that the student may independently read these languages especially that the scientist may read scientific works written in a foreign tongue. Two and one half years of German and two years of French are now offered.

## PSYCHOLOGY.

This department offers elective courses in both Psychology and Ethics. A standard text is used in each subject supplemented by lectures, assigned readings and laboratory work.



## ZOOLOGY.



THE ZOOLOGICAL LABORATORY

To learn about animals as living beings and as a part of that living world of which man is the culmination, is the underlying idea of the work in this department. The work in Zoology is designed to give a knowledge and understanding of Biological laws, to furnish the necessary theoretical basis for an

intelligent study of the practical branches of stock breeding, human and veterinary medicine and economic entomology. As a personal knowledge of the structure and life history of representative forms of life is necessary, much of the value of the course depends upon thorough laboratory investigations. Our laboratory is well equipped not only



PHYSIOLOGICAL LABORATORY

with the apparatus and instruments necessary for the most successful investigations but also with a large and valuable collection of representative forms, especially of birds, mammals and insects.

## MATHEMATICS.

Mathematics is made prominent in all the leading courses of study. While the ultimate object of the work of instruction is the acquirement of such command of the subject matter as will make it a valuable aid in technical and scientific study, it is also the purpose of the department to make it an effective tool in the development of intellectual strength. To this end accuracy in presentation is insisted upon. The student is subjected to the continuous discipline of holding details in mind, comparing facts, drawing conclusions, and advancing to the discovery of new truth. He learns to think, judge, originate and through his mathematical training, gains mental mastery.

## DOMESTIC SCIENCE.

The study of Domestic Science constitutes a great part of the work offered in the General and Domestic Science course and the Domestic Science or Normal Training course. The work of this department is that of applying the principles of the related sciences, Botany, Chemistry, Zoology, Physics and Physiology to the every day problems of the home. Domestic Science is the study of the home, its functions, its administration, its sanitary condition, and the selection and preparation of food. By means of lectures, recitations, demonstrations and laboratories, instruction is given in marketing, cooking, combining and serving foods, table setting, serving, entertaining, care of the home, home nursing, practice teaching, laundry work, sewing and basketry.



ONE CORNER OF THE ART ROOM



SCHOOL KITCHEN



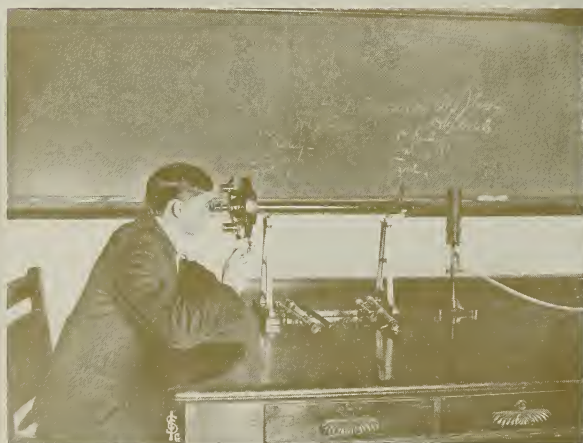
SEWING LABORATORY.

## CHEMISTRY.



The aim of this department is to develop in a student an appreciation for experimental study and to train his mind for inductive reasoning, thus laying the foundation for technical Chemistry as applied in Agriculture and Domestic Science. The study of Chemistry is conducted largely by the laboratory method--the principles thus discovered being discussed in the class room.

Thirty-seven courses of study are offered, some of which are required in all the college courses. Two and one-half years of Chemistry may be taken by the undergraduate and two years by the graduate student.



LABORATORY IN ORGANIC CHEMISTRY

## ECONOMIC SCIENCE.

The Department of Economic Science offers courses in the Outlines of Economics, especially the Industrial History of England, Money and Banking, Finance, Economic Problems, History of Political Economy, American Labor, and Industrial History of the United States.

It is the aim of this department to give a working basis for intelligent observation and study of economic life, and to this end economic theories are used so far as they are needed for an interpretation of facts.

## GEOLOGY AND MINERALOGY.

Instruction in the various courses in Geology and Mineralogy is given by means of recitations, laboratory and field work. Numerous field excursions are made under the direction of the instructors of the department, for studying the rocks, soils, etc. Study is made of minerals, rocks and fossils collected from all parts of the globe. Microscopes and field instruments are used in this work.

## LITERATURE.

In each course in Literature the purpose is to familiarize the student with our richest and best literature—to teach him to observe, to compare, to judge for himself, to develop the imagination and to enlarge the sympathies, the goal being that he shall appreciate what is noblest and best. The courses offered include the Drama, Epic and Lyric Poetry, Novel and Romance, American Literature, the Essay, and the Short Story. These courses are open to students in the Agricultural and Scientific courses.

## ENGLISH.

The ability not only to think but to express one's thoughts clearly and forcibly—the aim of all the courses in English—is of value to all who seek to excel in breadth and definiteness of knowledge. The courses in English include grammar, rhetoric, composition, and debating—emphasis in each being placed not upon theory but upon the application of rules and principles.

## HISTORY.

Courses are offered in the various fields of general history and also special courses in American Diplomatic, Constitutional

and Political history, English Constitutional history, the Renaissance, the Far Eastern Question, the 16th, 17th, and 18th Centuries, the French Revolution and the 19th Century. The student has at his command the College library which contains besides the principal works of reference, a large section devoted to historical subjects.

## PUBLIC SPEAKING.

The aim of this department is, by criticism and suggestion when the students are brought before the class to read or speak, to develop their greatest power in conversation and public speech. By means of lectures by the instructors, the principles upon which good speech depend are presented to the class. Practical drill is given in the presentation of sketches from our best writers—prose, poetry, dramatic literature, orations and addresses, as well as original extempore speeches and orations. Electives are offered in all courses except the Veterinary and Engineering courses.

## MUSIC.

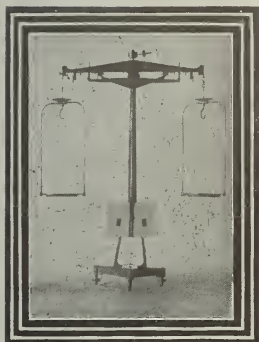
Music is under the direction of competent instructors—instruction being given in piano, pipe organ, history of music, voice culture and sight singing. Students are charged a moderate sum extra for instruction in music, the tuition and piano rent being payable in advance to the director. Students may begin work in music at any time.

## PHYSICAL CULTURE.

The aim of this course is to develop harmonious growth of all the muscles, to correct faulty positions and to create normal circulation and respiration. We seek to produce not only health and strength but also ease, grace and refinement. The usual training is given—as running, walking exercises with clubs, wands, weights, dumb bells, on swinging bars and rings and also free hand exercises. Physical training is required of all the young women in the Freshman, Sophomore and Junior years from the middle of October to the middle of April, but it is urged that all young women take individual daily training. Gymnasium suits of dark blue serge or flannel, regulation blouse and bloomers, and gymnasium shoes are required so that the body may have perfect freedom in all the exercises.

## PHYSICS.

The various courses offered in Physics are designed to meet the needs of the Science and Engineering students. The work offered in these courses during the Sophomore year may be supplemented by laboratory work in the Junior and Senior years. Advanced courses are also offered in mechanical heat, light, sound, electricity and magnetism, also an opportunity for doing thesis work in the various branches of Physics. There is a good equipment of apparatus and extended laboratory facilities including general physical laboratories, optical and photometer rooms and electrical testing and standardizing rooms.



A CORNER OF THE PHYSICAL CABINET

## CIVICS.

Believing that in a republic where the people are supreme, an education is incomplete, if not a failure, that does not relate itself to the duties and opportunities of citizenship, it is the purpose to point out to the student a reasonable and patriotic duty touching present laws, and to aid him in all possible ways to become a useful, honored and law-abiding member of the civic community, and to give him suitable instruction with regard to public affairs.

The courses are planned to give such knowledge and training as it is believed should be a part of a liberal education.



SPECIAL MILITARY COMPANY

## MILITARY.

The acquirement of dignity of carriage, gentlemanly deportment, self-respecting discipline and habits of order, neatness and punctuality are the chief advantages derived from the military course. Each cadet may pursue advanced work in Military Science—special classes being formed for instruction in the infantry, artillery and signal tactics. Lectures on military subjects are delivered throughout the course and regular battalion drill and parade occur each Monday and Wednesday afternoon.

All male students of the Freshman and Sophomore years, except such as are excused by the President, are required to become members of the College battalion and wear the prescribed uniform during military exercises.



## ATHLETICS.

As a sound and healthy physical body is necessary to the greatest acquirement of mental strength, athletic training as recreation and pastime are encouraged. The competitive games of football, baseball, track-work, tennis and basketball are indulged in—thus developing not only physical but also moral strength in making these clean and manly sports. These events are under the direction of an Athletic Council which is composed of members from both faculty and student body. Athletics also encourage good College work, for all participants must first be good conscientious students.



## SPECIAL LINES OF STUDY.

Special work may be taken along any of the lines of work offered by any of the departments of the College. Students desiring to pursue such work must be at least twenty years of age, must be prepared to do the work, must have a good reason for desiring such classification and must have the consent of the President and the head of the department in which the work is taken. The work pursued during the first year must be from studies of the Junior College—the second years work may be elected from the Senior College.

## EXPENSES.

The Iowa State College, supported largely by the State, freely offers all the advantages of a thorough education to the youth of the state. To the non-residents, a tuition fee of \$24.00 per year is charged. Each student pays a Janitor fee of \$5.00 per semester or \$8.00 if he enters after the close of the days devoted to Registration and Classification. Laboratory fees at the actual cost of breakage and usage are charged to the students. The entire cost of room, board and other school expenses need not be more than \$250.00 per year if one cares to live economically and yet well.

## THE COLLEGE LIBRARY.

The College library, consisting of over 18,000 volumes and about 5,000 pamphlets, is chiefly a library of reference containing standard and technical works, bearing particularly upon the lines of study pursued in the College. Magazines and periodical literature, bearing upon the special work of the students, and daily papers are furnished for their use.<sup>a</sup>

The reading room of the library is a large, well lighted room, open ten hours daily except Sundays when it is open only outside of church hours. Personal assistance will be given by the librarian or assistant to any who desire help in their reference work.



COLLEGE LIBRARY

"Books, we know are a substantial world, both pure and good, round which, with tendrils strong as flesh and blood, our pastime and our happiness can grow."

—*Wordsworth.*

## RELIGIOUS LIFE OF THE COLLEGE.

Although a state institution and hence non-sectarian, the College life is dominated by religious influences.

The Young Men's and Young Women's Christian Associations, the Bible Study classes and Mission classes, consisting of members of both faculty and student body, have a helpful influence not only upon the religious but upon the social life of the College. There is now in process of construction, an association and alumni building costing \$35,000.00, which is to be used as the center of the social and religious life of the College.

The faculty and students assemble daily in the Chapel at 11:45 a. m. for worship. On each Sunday morning at 10:45 Chapel exercises are conducted by some prominent clergyman invited for the occasion. In all of these services, as well as in the General Convocation of Students held the first Tuesday of each month, the object is to emphasize and enforce the principles of morality and the Christian religion.

## ALUMNI OF IOWA STATE COLLEGE.

In no way is the true worth of an institution so clearly evidenced as by the work of her graduates. In this respect as in others the Iowa State College holds her position among the other colleges of the Country, for from no other school will you find a greater percentage of the alumni who are holding prominent positions not only in the business and professional work but as members of the faculty in other educational institutions.

The Alumni Association of the Iowa State College, feeling the need of a "College Home," some place in which they might meet, re-awaken and strengthen their interest in their Alma Mater, have united with the Young Men's and Young Women's Christian Associations in erecting a four story brick building to be used as an Association and Alumni Hall.

This building which has been made possible by the generous subscriptions of alumni, students, faculty, citizens of Ames and other friends of the College, will be ready for occupancy this fall.



NEW ASSOCIATION AND ALUMNI HALL

# SUBJECTS TAUGHT AT IOWA STATE COLLEGE.

## AGRONOMY.

Study of Corn and Grain	*Commercial Judging and Grading of Grains
Field Engineering	*Irrigation
Farm Machinery	*Farm Architecture
Soil Physics	*Road Construction
Soil Fertility	*Farm Motors
Farm Management	*Drainage
Farm Implement Design	*Investigation of Farm Implements
Farm Blacksmithing and Horse Shoeing	Rural Architecture
Dairy Engineering	

## DAIRYING.

Dairy Practice	Factory Management
Butter Making	Milk Inspection
Milk Testing	Making of Fancy Cheese
Book Keeping for the Dairy	*Receiving and Sampling Milk and Cream
Dairy Bacteriology	*Separation and Pasteurization of Cream and Milk
Breeding and Judging Dairy Stock	*Cream Ripening
Cheese Making	*Churning, Washing, Salting and Working Butter
Scoring Butter and Cheese	*Packing and Marketing Butter
Feeding Dairy Stock	
Technology of Milk	

## HORTICULTURE.

Home and Market Gardening	Landscape Gardening
Pomology	Plant Propagation
Floriculture	Greenhouse Management
Plant Breeding	Wood Technology
Forestry	*Prevention of Erosion and Reclamation of Flood Damaged Lands by tree Planting
Forest Management and Policy	*Artificial Preservation of Timber
Orcharding	
*Tree Planting	
*Native Timber Growth	

\*Offered as Post Graduate Work.





## ANIMAL HUSBANDRY.

Breed Types of Domestic Animals	Animal Nutrition and Animal Byproducts
Market Types of Domestic Animals	Herd, Steed and Flock Book Study
Advanced Live Stock Judging	Principles of Breeding
	Live Stock Management

## VETERINARY SCIENCE.

Histology	Pathology
Physiology	Ophthalmology
Pharmacy	Principles and Practice of Surgery
Materia Medica	
Therapeutics	Veterinary Medicine
Surgical Anatomy	Horseshoeing
Meat Inspection	Sanitary Science
Obstetrics	Clinics
Jurisprudence	Hippology
	Conformation and Soundness

## MECHANICAL ENGINEERING.

Analytical Mechanics	Constructive Engineering
Materials of Construction	Free-Hand Drawing
Steam Engine	Machine Sketching
Machine Design	Mechanical Drawing
Hydraulics	Kinematic Drawing
Steam Engine Designing	Designing
Railway Mechanical Engineering	Shop Work
	Seminar

## CIVIL ENGINEERING.

Lettering	Railway Engineering
Field Work	Roads and Pavements
Descriptive Geometry	Engineering Laboratory
Drawing	Structural Designing
Plans of Structures	Framed Structures
Masonry Structures	Stereotomy
Practical Astronomy	Sanitary Engineering
Surveying	Hydraulic Engineering

## ELECTRICAL ENGINEERING.

Mechanics and Heat	Telephony
Light and Sound	Electric Circuits
Electricity and Magnetism	Physical Laboratory
Theory of Alternating Currents	Electric Railways and Power Transmission
Theory of Electrical Measurements	Alternating Current Machinery
Dynamo Electric Machinery	Electric Light and Power Installations
Electrical Designing	

## MINING ENGINEERING.

Principles of Mining	Field Work in Mine Surveying
Mining Engineering	Metallurgy
Mining Law	Ceramics
Mine Surveying	Ventilation and Haulage
Summer Field Work in the Study of Mine Operation and Equipment and of Concentrating Plants	Mine Exploration and Operation
	Mining Arithmetic

## MATHEMATICS.

Plane Analytic Geometry	Algebra
Differential and Integral Calculus	Plane Geometry
Differential Equations	Solid and Spherical Geometry
Advanced Analytic Geometry	Plane Trigonometry
Advanced Calculus	Spherical Trigonometry

## CHEMISTRY.

Elementary Inorganic Chemistry	Analysis of Foods
Qualitative Analysis	Chemistry of the Household
Blowpipe Analysis	Water Analysis
Assaying	Chemistry applied to Agriculture
Quantitative Analysis	Dairy Chemistry
Fuel and Gas Analysis	*Chemistry of Soils
Electro-Chemistry	*Chemistry of Dairying
Applied Chemistry	*Chemistry of Feeds
Metallurgy	*Chemistry of Horticulture
Physiological Chemistry	Organic Chemistry

\*Offered as Post Graduate Work.



## BOTANY AND BACTERIOLOGY.

Elementary Botany	Vegetable Cytology and
Ecology	Micro-Technique
Histology	Agrostology
Cryptogamic Botany	Seed and Seed Testing
Vegetable Pathology	General Systematic Phanero-
Bacteriology	gams
Structural Botany	Poisonous Plants
Evolution of Plants	Cryptogamic Botany-Ferns
Botanical Micro-Chemistry	Botanical Seminar
Zymotechnique	*Systematic Botany
Economic Botany	*Mycology
	Vegetable Physiology

## GEOLOGY.

Physiography	Agricultural Geology
General Geology	Petrography
Engineering Geology	Descriptive and Determinative
Economic Geology	Geology
	Mineralogy

## DOMESTIC ECONOMY.

Foods	Chafing Dish Cookery
Geography of Foods	Laundry Work
Cookery	Seminar
Home Sanitation	Household Accounts
Sickroom Cookery and Home	Plain Sewing
Nursing	Garment Work
Home Management	Drafting and Dressmaking
Demonstration Work	History of Art
Theory and Practice of Teach-	Home Decoration
ing	Basketry
	Dietaries

## ZOOLOGY.

Entomology	Comparative Anatomy
Invertebrate Zoology	Animal Parasites
Vertebrate Zoology	Morphology
Embryology	Neurology
Evolution of Animals	Human Physiology
	Invertebrate Comparative Anatomy



## SOCIAL SCIENCES.

Ethics	History of Political Economy
Psychology	Economic Problems
Principles of American Government	Money and Banking
State and Federal Constitutions	Finance
Rural Law	Industrial History of the United States
Comparative Government	American Labor
Outlines of Economics	

## ENGLISH.

Grammar	Composition
Rhetoric	Debating

## LITERATURE.

English Drama	The Drama in Translation
Epic and Lyric Poetry	The Short Story
Novel and Romance	The Essay
American Literature	

## PUBLIC SPEECH.

Elementary Speech	Extempore Speech
Interpretation	Advanced Public Speech
Dramatic Art	Oration

## HISTORY.

History of Western Europe	French Revolution and the
Europe in the XVI, XVII	XIXth Century
and XVIIIth Centuries	The Renaissance
Advanced American History	The Far Eastern Question
National Expansion, 1783 to 1845	The Constitutional History of England
Welding of the Nation, 1845 to 1900	The Formation of the Union
Diplomatic History of the United States	

## MODERN LANGUAGES.

French	German
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# CALENDAR FOR 1905-1906.

1905.

## FIRST SEMESTER.

August 29, Thursday, 7:45 a. m.,  
First Semester began.  
October 3, Tuesday, 11:30 a. m.,  
General Convocation of Students.  
October 15, Sunday, 10:30 a. m.,  
Sacred Concert.  
October 21, Saturday,  
College Day.  
November 7, Tuesday, 11:30 a. m.,  
General Convocation of Students.  
November 10, Friday,  
Inter-Collegiate Debate with Normal.  
November 30, Thursday,  
Thanksgiving Day--Holiday.  
December 5, Tuesday, 11:30 a. m.,  
General Convocation of Students.  
December 20-21, Wednesday-Thursday,  
Semester Examinations.  
December 21, Thursday, 5:00 p. m.,  
First Semester Ends.

1906.

January 2-13, Tuesday to Saturday,  
Short Courses in Stock and Grain Judging, Domestic  
Science, Dairying and Veterinary Science.

## SECOND SEMESTER.

January 18, Thursday, 7:45 a. m.,  
Second Semester begins.  
January 20, Saturday,  
Y. M. C. A. and Y. W. C. A. Receptions.

January 22, Monday, 7:45 a. m.,	College Work begins.
January 25, Thursday,	Day of Prayer in all Colleges.
February 6, Tuesday, 11:30 a. m.,	General Convocation of Students.
February 22, Thursday,	Washington's Birthday--Holiday.
March 6, Tuesday, 11:30 a. m.,	General Convocation of Students.
March 28, Wednesday, 5:00 p. m.,	Easter Vacation begins.
April 2, Monday, 7:00 p. m.,	Easter Vacation closes.
April 3, Tuesday, 11:30 a. m.,	General Convocation of Students.
May 1, Tuesday, 11:30 a. m.,	General Convocation of Students.
May 25, Friday,	Last Date for presenting Theses to Thesis Committee.
May 30, Wednesday,	Memorial Day--Holiday.
June 1, Friday,	Civil Engineers go into Summer Camp.
June 1, Friday, 8:00 p. m.,	Graduation Exercises of Literary Societies.
June 3, Sunday, 10:30 a. m.,	Baccalaureate Address.
June 5, Tuesday, 2:30 p. m.,	Senior Class Day Exercises.
June 6, Wednesday,	Alumni Business Meeting.
June 7, Thursday, 10:30 a. m.,	Commencement Address and Presentation of Diplomas.
June 7, Thursday, 1:00 p. m.	Alumni and Faculty Banquet.

June 8, Thursday,

Summer Vacation begins.

August,

Good Roads School.

FIRST SEMESTER.

August 30, Thursday,

First Semester Begins.

August 30-September 1, Thursday to Saturday,

Registration and Classification Days.

September 1, Saturday,

Y. M. C. A. and Y. W. C. A. Reception.

September 3, Monday, 7:45 a. m.

College Work begins.

September 4, Tuesday, 11:30 a. m.

General Convocation of Students.

September 8, Saturday,

Joint Y. M. C. A. and Y. W. C. A. Reception.

September 27, Thursday,

Presentation of Subjects for Master's Degree.

September 28-29, Friday and Saturday,

Harvest Home Festival.

October 1, Monday,

Presentation of Subjects for Bachelor's Degree.

October 2, Tuesday, 11:30 a. m.

General Convocation of Students.

October 20, Saturday,

College Day.

November 6, Tuesday, 11:30 a. m.

General Convocation of Students.

November 29, Thursday,

Thanksgiving Day--Holiday.

December 19-20, Wednesday and Thursday,

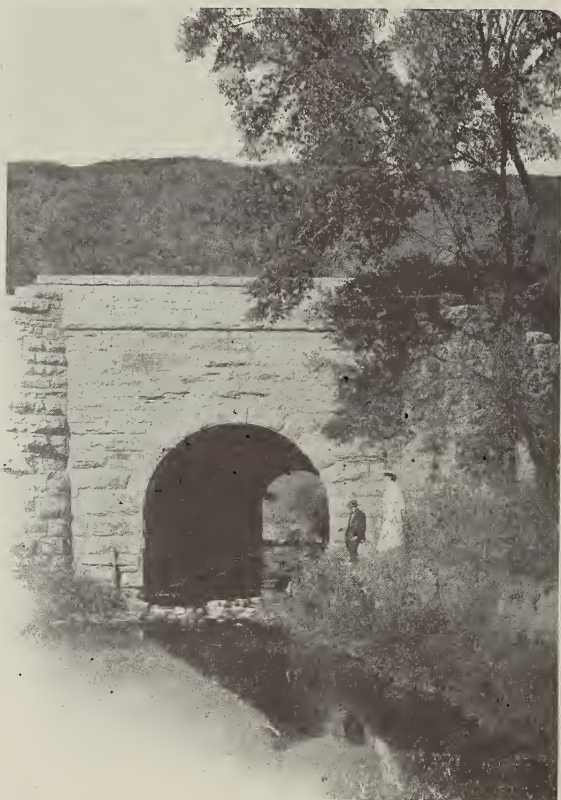
Semester Examinations.

December 20, Thursday, 5:00 p. m.

College Work closes.

December 21-January 17,

Winter Vacation.









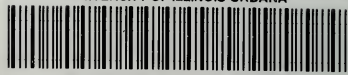








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